## Release notes for ENDF/B Development photoat-090\_Th\_000 evaluation



October 13, 2016

- checkr Warnings:
  - 1. A previous error halted parsing of the current section  $MAT=9000,\ MF=1,\ MT=451\ (1)$ : Parsing stopped

ERROR(S) FOUND IN MAT=9000, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER 170 TO 209

- checkr Errors:
  - 1. A variable is outside the allowed ENDF range MAT=9000, MF=1, MT=451 (0): Variable range

ERROR(S) FOUND IN MAT=9000, MF= 1, MT=451
MOD = 3 OUT OF RANGE 0 - 1 RECORD NUMBER 170

2. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=501 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=501
SECTION 23/501 NOT IN DIRECTORY RECORD NUMBER

3. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=502 (0): Directory (b)

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ERROR(S) FOUND IN MAT=9000, MF=23, MT=502
SECTION 23/502 NOT IN DIRECTORY RECORD NUMBER 1245

4. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=504 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=504
SECTION 23/504 NOT IN DIRECTORY RECORD NUMBER 1746

5. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=515 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=515
SECTION 23/515 NOT IN DIRECTORY RECORD NUMBER 1787

6. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=516 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=516
SECTION 23/516 NOT IN DIRECTORY RECORD NUMBER 1822

7. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=517 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=517 SECTION 23/517 NOT IN DIRECTORY

RECORD NUMBER 1878

8. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 522 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=522 SECTION 23/522 NOT IN DIRECTORY

RECORD NUMBER 1920

9. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=534 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=534 SECTION 23/534 NOT IN DIRECTORY

RECORD NUMBER 2386

10. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=535 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=535 SECTION 23/535 NOT IN DIRECTORY

RECORD NUMBER 2406

11. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=536 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=536 SECTION 23/536 NOT IN DIRECTORY

RECORD NUMBER 2428

12. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=537 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=537 SECTION 23/537 NOT IN DIRECTORY

RECORD NUMBER 2451

13. Missing a section in directory so your directory is messed up. This error will break everything else  $MAT=9000,\ MF=23,\ MT=538\ (0)$ : Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=538 SECTION 23/538 NOT IN DIRECTORY

RECORD NUMBER 2474

14. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=539 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=539 SECTION 23/539 NOT IN DIRECTORY

RECORD NUMBER 2499

15. Missing a section in directory so your directory is messed up. This error will break everything else  $MAT=9000,\ MF=23,\ MT=540\ (0)$ : Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=540 SECTION 23/540 NOT IN DIRECTORY

RECORD NUMBER 2526

16. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 541 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=541 SECTION 23/541 NOT IN DIRECTORY

RECORD NUMBER 2553

17. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 542 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=542 SECTION 23/542 NOT IN DIRECTORY

RECORD NUMBER 2581

18. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 543 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=543 SECTION 23/543 NOT IN DIRECTORY

RECORD NUMBER 2610

19. Missing a section in directory so your directory is messed up. This error will break everything else  $MAT=9000,\ MF=23,\ MT=544\ (0)$ : Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=544 SECTION 23/544 NOT IN DIRECTORY

RECORD NUMBER 2637

20. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=545 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=545 SECTION 23/545 NOT IN DIRECTORY

RECORD NUMBER 2668

21. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=546 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=546 SECTION 23/546 NOT IN DIRECTORY

RECORD NUMBER 2699

22. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=547 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=547 SECTION 23/547 NOT IN DIRECTORY

RECORD NUMBER 2736

23. Missing a section in directory so your directory is messed up. This error will break everything else  $MAT=9000,\ MF=23,\ MT=548\ (0)$ : Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=548 SECTION 23/548 NOT IN DIRECTORY

RECORD NUMBER 2774

24. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 549 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=549 SECTION 23/549 NOT IN DIRECTORY

RECORD NUMBER 2831

25. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 550 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=550 SECTION 23/550 NOT IN DIRECTORY

RECORD NUMBER 2887

26. Missing a section in directory so your directory is messed up. This error will break ev-

erything else MAT=9000, MF=23, MT=551 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=551 SECTION 23/551 NOT IN DIRECTORY

RECORD NUMBER 2916

27. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 552 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=552 SECTION 23/552 NOT IN DIRECTORY

RECORD NUMBER 2954

28. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=553 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=553

SECTION 23/553 NOT IN DIRECTORY

RECORD NUMBER 2989

29. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=554 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=554 SECTION 23/554 NOT IN DIRECTORY

RECORD NUMBER 3045

30. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=559 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=559 SECTION 23/559 NOT IN DIRECTORY

RECORD NUMBER 3102

31. Missing a section in directory so your directory is messed up. This error will break everything else  $MAT=9000,\ MF=23,\ MT=560\ (0)$ : Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=560 SECTION 23/560 NOT IN DIRECTORY

RECORD NUMBER 3139

32. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 561 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=561 SECTION 23/561 NOT IN DIRECTORY

RECORD NUMBER 3180

33. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 562 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=562 SECTION 23/562 NOT IN DIRECTORY

RECORD NUMBER 3221

34. Missing a section in directory so your directory is messed up. This error will break everything else

MAT = 9000, MF = 23, MT = 563 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=563 SECTION 23/563 NOT IN DIRECTORY

RECORD NUMBER 3281

35. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=23, MT=570 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=23, MT=570 SECTION 23/570 NOT IN DIRECTORY

RECORD NUMBER 3341

36. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=27, MT=502 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=27, MT=502 SECTION 27/502 NOT IN DIRECTORY

RECORD NUMBER 3380

37. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=27, MT=504 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=27, MT=504 SECTION 27/504 NOT IN DIRECTORY

RECORD NUMBER 3430

38. Missing a section in directory so your directory is messed up. This error will break everything else MAT=9000, MF=27, MT=505 (0): Directory (b)

ERROR(S) FOUND IN MAT=9000, MF=27, MT=505 SECTION 27/505 NOT IN DIRECTORY

RECORD NUMBER 3481

39. Missing a section in directory so your directory is messed up. This error will break everything else  $MAT=9000,\ MF=27,\ MT=506\ (0)$ : Directory (b)

## • fudge-4.0 Warnings:

1. generic warning message reaction label 0: Th + gamma [coherent] / Product: gamma (Error # 0): Warning

WARNING: coherentScattering is not a valid distribution component for 2-body reaction

2. FIXME: Generic fudge unimplemented message reaction label 0: Th + gamma [coherent] / Product: gamma (Error # 2): Generic unimp (c)

WARNING: Checking not yet implemented for pointwise type data

3. generic warning message reaction label 1: Th + gamma [incoherent] / Product: gamma (Error # 0): Warning

WARNING: incoherentScattering is not a valid distribution component for 2-body reaction

4. FIXME: Generic fudge unimplemented message reaction label 1: Th + gamma [incoherent] / Product: gamma (Error # 2): Generic unimp (c)

WARNING: Checking not yet implemented for piecewise type data

5. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule summedReaction label 31: total (Error # 0): Sumrule

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 100.00%

6. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule summedReaction label 33: photoelectric absorption (Error # 0): Sumrule

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 62.51%

## • fudge-4.0 Errors:

1. Calculated and tabulated thresholds don't agree reaction label 0: Th + gamma [coherent] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

2. 2-body reaction not in center-of-mass frame reaction label 0: Th + gamma [coherent] / Product: gamma (Error # 1): 2-body not in COM

WARNING: 2-body reaction not in center-of-mass frame!

3. Calculated and tabulated thresholds don't agree reaction label 1:  $Th + gamma\ [incoherent]\ /\ Cross\ section$ : (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

4. 2-body reaction not in center-of-mass frame reaction label 1: Th + gamma [incoherent] / Product: gamma (Error # 1): 2-body not in COM

WARNING: 2-body reaction not in center-of-mass frame!

5. Energy range of data set does not match cross section range reaction label 1: Th + gamma [incoherent] / Product: gamma / Distribution incoherentScattering - piecewise: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (0.0 -> 1000000000.0) vs (1.0 -> 1e+11)

6. Calculated and tabulated thresholds don't agree reaction label 2: e- + e+ + Th [electron field] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 2.044e6 eV!

7. Calculated and tabulated thresholds don't agree reaction label 3: e- + e+ + Th [nuclear field] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!

8. Calculated and tabulated thresholds don't agree reaction label 4: e- + Th1s1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 110110. eV!

9. Calculated and tabulated thresholds don't agree reaction label 5: e- + Th2s1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 20478. eV!

10. Calculated and tabulated thresholds don't agree reaction label 6: e- + Th2p1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 19780. eV!

11. Calculated and tabulated thresholds don't agree reaction label 7: e-+ Th2p3/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 16315. eV!

12. Calculated and tabulated thresholds don't agree reaction label 8: e- + Th3s1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5157.9 eV!

13. Calculated and tabulated thresholds don't agree reaction label 9: e- + Th3p1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4831.6 eV!

- 14. Calculated and tabulated thresholds don't agree reaction label 10: e- + Th3p3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4036.2 eV!
- 15. Calculated and tabulated thresholds don't agree reaction label 11: e- + Th3d3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 3502.4 eV!
- 16. Calculated and tabulated thresholds don't agree reaction label 12: e- + Th3d5/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 3338.6 eV!
- 17. Calculated and tabulated thresholds don't agree reaction label 13: e- + Th4s1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1310.6 eV!
- 18. Calculated and tabulated thresholds don't agree reaction label 14: e- + Th4p1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1162.3 eV!
- 19. Calculated and tabulated thresholds don't agree reaction label 15: e- + Th4p3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 956.16 eV!
- 20. Calculated and tabulated thresholds don't agree reaction label 16: e- + Th4d3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 714.809999999999 eV!
- 21. Calculated and tabulated thresholds don't agree reaction label 17: e- + Th4d5/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 676.64 eV!
- 22. Calculated and tabulated thresholds don't agree reaction label 18: e- + Th4f5/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 358.55 eV!
- 23. Calculated and tabulated thresholds don't agree reaction label 19: e- + Th4f7/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 348.69 eV!
- 24. Calculated and tabulated thresholds don't agree reaction label 20: e- + Th5s1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 294.76 eV!

- 25. Calculated and tabulated thresholds don't agree reaction label 21: e- + Th5p1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 237.43 eV!
- 26. Calculated and tabulated thresholds don't agree reaction label 22: e- + Th5p3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 189.41 eV!
- 27. Calculated and tabulated thresholds don't agree reaction label 23: e- + Th5d3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 104.23 eV!
- 28. Calculated and tabulated thresholds don't agree reaction label 24: e- + Th5d5/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 97.11 eV!
- 29. Calculated and tabulated thresholds don't agree reaction label 25: e- + Th6s1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 50.55 eV!
- 30. Calculated and tabulated thresholds don't agree reaction label 26: e- + Th6p1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 33.52 eV!
- 31. Calculated and tabulated thresholds don't agree reaction label 27: e- + Th6p3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 25.01 eV!
- 32. Calculated and tabulated thresholds don't agree reaction label 28: e- + Th6d3/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5.62 eV!
- 33. Calculated and tabulated thresholds don't agree reaction label 29: e- + Th6d5/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4.98 eV!
- 34. Calculated and tabulated thresholds don't agree reaction label 30: e- + Th7s1/2 / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5.97 eV!
- 35. Calculated and tabulated thresholds don't agree summedReaction label 31: total / Cross section: (Error # 0): Threshold mismatch
  - WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

36. Calculated and tabulated thresholds don't agree summedReaction label 32: pair product / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!

37. Calculated and tabulated thresholds don't agree  $summedReaction\ label\ 33:\ photoelectric\ absorption\ /\ Cross\ section:\ (Error\ \#\ 0):\ Threshold\ mismatch$ 

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs  $4.98\ eV!$ 

- xsectplotter Warnings:
  - 1. Encountered runtime warning in xsect plotter or Fudge or matplotlib  $\it Error: Runtime Warning$

stderr while processing crossSection

/usr/local/lib/python2.7/site-packages/matplotlib-1.3.1-py2.7-linux-x86\_64.egg/matplotlib/pyplot.py:412: Runtime ... [3 more lines]